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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/595,778	06/16/2000	Michael Grimbergen	AMAT/2077.D1	6490
61285 7590 01/21/2009 JANAH & ASSOCIATES, P.C. 650 DELANCEY STREET, SUITE 106 SAN FRANCISCO, CA 94107			EXAMINER OLSEN, ALLAN W	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 01/21/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/595,778	GRIMBERGEN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Allan Olsen	1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 90-106 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 90-106 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)                       |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application             |
| Paper No(s)/Mail Date <u>9/29/08</u> .   | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: Computer translation of JP 07-073997.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 16, 2008 has been entered.

### ***Response to Amendment***

The declaration filed on July 23, 2008 under 37 CFR 1.131 is sufficient to overcome the Chiu reference.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-9, 90-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,846,883 issued to Moslehi.**

With respect to claim 1, Moslehi teaches method of processing a substrate that has a surface in a process chamber comprising a wall (see figure 11). Moslehi teaches introducing a gas into the process chamber and energizing the gas by passing RF energy through the wall of the process chamber to the gas inside the process chamber to energize the gas (see column 6, lines 16-64). Moslehi teaches detecting radiation reflected from the substrate by virtue of the fact that Moslehi teaches full wafer interferometry. Moslehi teaches detecting the radiation from directly above the surface of the substrate after the radiation propagates through the wall (see, for example, column 8, lines 47-48).

Regarding claim 2, Moslehi teaches energizing the gas by powering a multi-turn antenna (see, for example, figure 2 and 8).

Regarding claims 3 and 4, Moslehi teaches the multi-turn antenna (1) covers a portion of a ceiling of the process chamber the chamber, (2) is non-vertical, and (3) comprises a coil (see, for example, figure 2 and 8). Regarding the limitation "covers a portion of the ceiling", the examiner notes that Moslehi teaches a hermetically sealed ICP source and that portion of the dielectric in which the ICP source is embedded is considered to be that portion of the ceiling that is covered by the multi-turn antenna.

Regarding claims 5-7, Moslehi teaches the radiation propagating through the wall comprises an optical beam and Moslehi teaches monitoring the process with a monitoring means that is responsive to radiation (see, for example, column 14, lines 15-

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18). Moslehi teaches mounting a full wafer interferometry sensor above the optical window (see column 23, lines 43-45).

Regarding claims 90, Moslehi teaches introducing an etching gas and energizing the etching gas to etch the substrate (column 6, line 23).

Regarding claims 8, 9 and 92-94 the limitations of these claims are met by virtue of the fact that Moslehi teaches using interferometric spectroscopy to monitor the processing of the wafer.

Regarding claim 98, Moslehi teaches the chamber comprises a cathode within the chamber, and wherein the method comprises coupling RF energy to the gas in the chamber by applying RF currents to the cathode and multi- turn antenna (see figure 22).

Regarding claims 103 and 104, Moslehi teaches the optical view port comprises sapphire ( $\text{Al}_2\text{O}_3$ ) or quartz ( $\text{SiO}_2$ ) (see column 23, line 40).

Regarding claims 91-93, 96 and 97, the examiner notes that these claims, in some fashion, require the ICP coil to couple RF energy to the gas within the chamber from above an external portion of the wall. The examiner notes that while Moslehi is largely directed to a hermetically sealed ICP coil that is placed within the vacuum chamber, Moslehi also teaches the ICP source can also be implemented outside the vacuum chamber (see column 6, lines 34-38).

Regarding claims 99-102, 105 and 106, while these claims have not been specifically addressed by claim number the examiner believes all the limitations contained in these claims have been addressed by the above analysis.

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Moslehi does not explicitly teach monitoring the depth of the surface being processed.

It would have been obvious to one skilled in the art to measure the depth of a layer being processed because this is critical parameter that is typically closely followed and the full wafer interferometry taught by Moslehi is particularly well suited for monitoring this critical parameter.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1, 5-7, 90, 92, 93, 95, 96, 100, 103, 104 and 106 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by JP 07-073997. See computer generated translation.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441.

The examiner can normally be reached on M, W and F: 1-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allan Olsen/  
Primary Examiner, Art Unit 1792